DOCUMENT RESUME

ED 165 469 FL 009 970

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TITLE The Effect of Foreign Language Study on Verbal Ability in the Native Language: A Review of Evidence.
PUB DATE 23 Aug 78
NOTE 21p.; Paper presented at International Conference of Applied Linguistics (5th, Montreal, Quebec, Canada, August 23, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Achievement Tests; Bilingualism; *Communicative Competence (Languages); *Ples; French; *Language Ability; Language Instruction; Language Processing; Language Programs; Language Research; Language Tests; Latin; Literature Reviews; Modern Language Curriculum; *Second Language Learning; Spanish; Thought Processes; *Transfer of Training; *Verbal Ability
IDENTIFIERS *Native Language Ability

ABSTRACT

This paper examines some experimental evidence relating to the influence of second language learning on native language performance, including results from elementary school Latin programs, research on bilingualism and intellect, and elementary school programs in modern languages. Some studies of Latin FLES programs show that specially designed Latin curricula appear to improve English language arts test scores, although results are not always statistically significant. Studies in bilingual, immersion, and language-switch programs appear to have only marginal relevance, since determining variables are usually sociological, economic, or political rather than linguistic. Also, the difference between learning a language in a communicative setting as opposed to the traditional foreign language classroom must be accounted for. Studies comparing English language arts scores of French and Spanish FLES students with scores of non-language learners are not conclusive; those indicating a positive impact are susceptible to criticism. More conclusive evidence concerning the influence of foreign language study on native language usage will be provided only by a longitudinal study which takes into account I.Q., English ability before taking foreign language, socioeconomic status, language of the home, experience abroad, high school curriculum, language studied, and grade received. Tabular data are included. (EJS)

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ED165469

THE EFFECT OF FOREIGN LANGUAGE STUDY ON VERBAL ABILITY IN THE NATIVE LANGUAGE: A Review of Evidence

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A paper presented at:
Fifth International Conference of Applied Linguistics
Montreal, Quebec, Canada
23 August 1978

FL009970

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Statements such as, "I never really understood grammar until I studied a foreign language," are very often heard from students of both classical and modern languages. This "folk attitude" about the beneficial effect of second language study on native language performance is shared by many of us in the language teaching profession. In fact, one of the arguments we use to justify a place for language instruction in the curriculum states that second language study has a positive effect on native-language performance. Observations to this end appear frequently in the professional foreign language education literature in the United States, and in statements we make to the American public to persuade them of the benefits of language study.

For example, the texts designed to introduce prospective language teachers to the profession include such statements as the following:

> "The American student can develop a clearer understanding of his native English by comparing it with a non-English communication system." (Grittner, 1969, p. 25)

> "Studying a second language provides a comprehension of the connotations of words and the building blocks of expression that is unimagined prior to the study of a second language." (Chastain, 1976, p. 6)

Hancock quotes Vygotsky's observation that language study promotes mastery of the "higher forms" of one's native language and enables him "to see his own language as one particular system among many, to view its phenomenon under more general categories, and this leads to awareness of his linguistic operations...."

We in the language teaching profession have used similar statements to justify our discipline's existence to the American public. In the

mid-1950's the Foreign Language Program of the Modern Language Association of America adopted the following as part of its statement "Values of Foreign Language Study":

> The study of foreign language...provides...a new understanding of language, progressively revealing to the pupil the structure of the language and giving him a new perspective on English, as well as increased vocabulary and greater effectiveness in expression. (from Foreign Language Program Policy of the MLA of A in PMLA, pt. 2, September 1956, xiv; reprinted in W.M. Rivers Teaching Foreign Language Skills, Chicago: University of Chicago Press, 1970, p. 29)

When American educators were debating the issues of "liberal education" in the late 1950's, William Riley Parker asserted:

> If, for example, liberal education means broadening and training the mind by pursuing knowledge for its own sake, it should not be forgotten that mind-training is largely verbal training--and most "experts" in the liberal arts have signified their conviction that a single language just does not provide a sufficient range of verbal perceptiveness for a liberally educated person. (The Language Curtain, p. 126)

And more recently, when the "basic education" movement has in some locales adversely affected foreign language study by labeling it a "frill," Fred M. Hechinger of the New York Times has concluded an editorial on the subject of language study with the statement: "Knowledge of a foreign language, including and perhaps especially Latin, may not be essential to the mastery of English, but it helps."

While those individuals who have had successful foreign language learning experiences tend to agree with statements such as those just cited, the language teaching community in the United States has not collected supportive experimental data to buttress their claims. The aim of this paper is to examine critically some experimental evidence relating to the influence of second language learning on performance in the native language. Our discussion of related research includes an analysis of relevant results from elementary school Latin programs, research on bilingualism and intellect and elementary school programs in the modern languages.

Documentation of the value of Latin study on English vocabulary and reading skills has been provided in two recent reviews of research by Masciantonio (1977) and Mavrogenes (1977). Most of this evidence comes from elementary school programs which provide a special Latin curriculum designed specifically to enhance word study skills. One such study describes the effect of special multisensory instructional materials in the School District of Philadelphia. The Latin students receive instruction by itinerant teachers for 15-20 minutes per day. In a matched pair analysis done in 1970-71 with controls for Iowa V pre-test, grade level and "neighborhood" (socio-economic group and possibly contaminating reading experience), it was found that 5th grade pupils who were taking the Latin course were functioning one full year beyond the control students, as measured by the Iowa V subtest. (Latin students were performing at about grade level, whereas control students were one year below grade level.) (Offenburg, 1971)

In the 1973-74 school year, the Indianapolis Public Schools initiated an experimental program which used teacher-made or adapted materials designed to stress the importance of Latin root words. The experimental group of sixth grade students received one half hour of instruction in Latin per day with a Latin specialist teacher; the program was coordinated with instruction in other subjects. In each of the two years (years II and III) for which tables are given in the report, the experimental group numbered about 400 for the October administration of the pre-test (Form H of the Metropolitan Achievement Test) and had been reduced to approximately 300 by the time of the March administration of the post-test (Form F of the same test). The control group numbered approximately 100 in years II and III. In addition to establishing group comparability through pre-testing, "the groups were selected on the basis of their similarity of economic, social and academic profiles." (Sheridan, 1976, p. 4)

Masciantonio (p. 377) reports that in the first year of the project, the experimental group showed a gain over the control group (emphasis ours) of: 8 months in word knowledge, one year in reading, one year one month in language, and 4 months in spelling. This statement is not quite accurate; Sheridan states (p. 3) that these gains are simply the net improvement in the experimental group's scores. There are no tables comparing experimental with control group for the first year of the project in Sheridan's report. The report does contain comparative data on years II and III, however.

Pre-test scores show there to be non-significant differences favoring the control group in the sub-tests on word knowledge, reading or language (see Table 1). The experimental group was significantly better in spelling ($p < .01$). The post-tests showed that this advantage of the experimentals had disappeared (i.e. there was no significant difference between the groups on the spelling measure); the experimentals scored significantly higher than the controls in word knowledge ($p < .05$). Reading and language scores showed non-significant differences in favor of the experimental group. The results of year II's testing justify cautious optimism concerning the effect of FLES Latin on English language arts skills, but no more. First, who were those 100 students in the experimental group whose scores were not recorded in spring? They might have been the poorest (or the best) readers of the group. It would lend confidence to the results of this study to eliminate these students from the pre-test group. Second, in three of the four sub-tests, the gains of the experimental group are greater than those of the controls, but we cannot have confidence in these results since the differences in mean gain were not analyzed statistically. (Insert Table 1 about here.)

The results of year III give cause for more optimism, however (see Table 2). The pre-tests found the experimental and control groups not differing significantly in the areas of word knowledge, reading and language. The controls held a significant ($p < .01$) advantage in spelling. On the post-test, however, the experimental group performed significantly better on word knowledge ($p < .05$),

reading ($p < .10$) and language ($p < .01$). There was no significant difference in spelling scores, although the experimental group gained ground on the controls.

It would seem then that the evidence from the Indianapolis project provides some support for the argument that FLES Latin can positively affect English language arts skills of elementary students. The overall results of the project were positive enough though that Latin instruction is continuing in Indianapolis schools. (Insert Table 2 about here.)

The intent here is not to undertake an extensive review and critique of the evidence presented by Masciantonio and Mavrogenes. Though their results should not be accepted uncritically, they have provided interesting data, much of which support the value of special Latin curricula in helping Americans to develop verbal skills in their native language.

Until Peal and Lambert's (1962) study of French-English bilinguals in Montreal, most research indicated a negative effect of bilingualism on intelligence and verbal ability (see Peal and Lambert's review of the literature). Peal and Lambert found, however, that bilinguals had acquired a significant "language asset," and that they were more facile at concept formation and had greater mental flexibility than monolinguals. The bilinguals' better achievement in school was attributed at least in part to their verbal facility (Dil, ed., 1972, p. 152f).

The experimenters realized that the superior performance of the bilingual population on verbal tests may have been simply a reflection of the bilinguals' overall higher intelligence. This study was the first to attempt to assure "balanced bilingualism" in the bilingual population; several measures were used to ascertain balanced bilingualism. When other tests were ambiguous as to the degree of balance, an English vocabulary score was given the highest weight. This procedure, according to the experimenters, tended to eliminate those students who might have been balanced bilinguals but who didn't have well-developed vocabularies in either French or English (Dil, ed., 1972, p. 140f).

Cummins (1976), in his review of the influence of bilingualism on

cognitive growth, has made two observations which should be taken into consideration in looking at the impact of second language study on first language performance. His first observation concerns the importance of sociological, psychological and political factors in language matters. He observes that most studies which have shown a positive effect of bilingualism on intellect have been carried out in situations where the second language has been a socially relevant one, but one which is not likely to replace the first language, which is a prestigious or dominant one. Studies which show a negative effect of bilingualism on verbal intelligence tend to treat situations where the second language is a majority or socio-politically dominant one which is likely to replace the first or minority language. (Cummins, 1976, p. 36)

Cummins' second important observation is that there may be a threshold of competence in the second language which it is necessary to achieve before the positive effects of becoming bilingual may take effect. Cummins is careful to point out that this threshold level is not a basic causal variable, but rather an intervening one. "...the attainment of the threshold is itself determined by more fundamental social, attitudinal, educational and cognitive (e.g. language learning aptitude) factors." (Cummins, 1976, p. 23)

Evidence for the validity of Cummins' first assertion may be found in two recent studies reported by Ben-Zeev (1977 and 1978). Ben-Zeev found that both a middle-class Hebrew-English bilingual group of children and a disadvantaged Spanish-English group exhibited similar perceptual strategies which were superior to those of matched monolingual control groups. The strategies were attention to structure and readiness for reorganization, with the Spanish-English group showing less marked superiority than the Hebrew-English group.

We must assume that the Hebrew-English children were in a situation where one of the languages was not likely to replace the other totally.

In the Spanish-English situation, however, English was undoubtedly the prestige language in the eyes of the bilingual children, since the typical subject reported that he thinks he speaks Spanish better, but likes English better. (Ben-Zeev, 1978, p. 86)

Ben-Zeev's most interesting results for our purposes were those obtained concerning the children's use of syntax. In the Hebrew-English study, bilinguals showed that they could generalize syntactic rules of the Berko-type as well as monolinguals. In the Spanish-English "Grammar Usage in Telling Stories" test, it was found that mastery of some basic rules such as for verb tense and person and for preposition choice was inferior for the bilinguals.

As Ben-Zeev points out, it is difficult to compare the results of the Berko-type test with the "Grammar Usage in Telling Stories" test, since they are so different. The results would seem to support nevertheless the validity of Cummins' assertion.

This overview of three important studies concerning the influence of bilingualism on intellect does not lead us to be optimistic about applying bilingual research results to our central concern: the influence of foreign language study in an academic setting on native language skills. First of all, most studies of bilinguals measure language that has been acquired outside the classroom; it is reasonable to assume that classroom language learning and "natural" language learning are <u>not</u> comparable. Steve Krashen's Monitor Model sheds new and interesting light on this difference (see Krashen, 1977). He distinguishes between language <u>acquisition</u> (what happens in a "natural" or simulated natural setting) and language <u>learning</u> (what happens in most language classrooms: conscious mastery of patterns and lexical items). It could

be, for instance, that language acquisition (as manifested in most bilinguals' second language) has very little impact upon native language arts skills. The conscious concentration involved in learning new forms and structures may on the other hand force the learner to look carefully at his native language and therefore perform better on the kinds of tests used to measure progress in English language arts.

Secondly, most bilingual learning situations are heavily influenced by social, political and psychological phenomena that have more to do with the way human beings interact together in the real world than it does with how they learn languages, either inside or outside of a classroom. Thirdly, if Cummins is right in thinking that there is a threshold level of language competence which must be passed before the positive benefits of bilingualism are manifested, we would be hard-pressed to find subjects to test the applicability of this hypothesis to the foreign language learning situation in traditional foreign language classrooms, since the level of proficiency attained is so low even in college language majors (see Carroll, 1967). There is some evidence from Canadian immersion experience to support Cummins' hypothesis (see Barik and Swain, 1976).

Most experimentation concerning the influence of foreign language study in the elementary schools (FLES) on English language arts performance was done in the 1960's. During this period, advocates of FLES were attempting to prove that the time taken out of the elementary program for language study caused no adverse effect upon achievement in other subject areas. Overviews of this research may be found in Donoghue (1966) and Donoghue (1969).

In what follows, we will discuss first several studies which have shown no significant difference between FLES and non-FLES students on measures of English language arts skills; we will then review several studies which have shown significant differences. We will conclude that some of the positive

results reviewed by Donoghue should have been interpreted more conservatively.

A large-scale study conducted in the schools of St. Paul, Minnesota from 1960-63 found no significant difference between the achievement test scores of fourth, fifth and sixth grade students on the Iowa Test of Basic Skills and the Stanford Social Studies Test. FLES students studied Spanish for 15 minutes a day, time subtracted from the study of social studies, lan- language arts or arithmetic (Leino and Haak, 1963).

A two-year study of 120 elementary school Spanish students in Minnesota Spanish found that the addition of second language instruction did not adversely affect their achievement in reading vocabulary, reading comprehension, or language skills, as measured by the Iowa Test of Basic Skills. The students were randomly assigned to three classes of 30 each for instruction in Spanish with one control group of 30. Analysis of covariance was used with the September, 1963 administration of the Iowa Test of Basic Skills treated as the covariate, and the May, 1965 administration of the same test as the criterion. The .05 level of significance was used (Smith, 1966).

In a project carried out in a New York State laboratory school, Potts (1967) found no significant difference between the scores of the experimental (French FLES) students and those of control students on the California Achievement Test and the California Reading Test. During FLES language classes, the controls were involved in non-cognitive activity.

These studies are representative of those which show no significant difference for English language arts skills between those pupils who have studied a foreign language in elementary school and those who have not. Additional evidence for the lack of significant effect on English language arts skills of second language study in elementary school comes from the St. Lambert experiment (Lambert and Tucker, 1972). After four years of very careful observation and measurement, it was found that the children in the first cohort, who had received instruction in French for the majority

of their time in school and who had gained competence in French far superior to that of typical FLES students, exhibited no significant difference from the English controls on measures of English word knowledge, word discrimination and language usage. In addition, their reading ability, listening comprehension and knowledge of concepts in English were not significantly different from the English controls, and their spontaneous productions in English were as long and complex and their vocabulary as rich and diverse (p. 203).

Several studies in the FLES literature have reported a positive effect on English language arts skills. Lopato (1963) reports a study involving two classes of third grade students at both a New York City (Bayside) and a Long Island, New York (Valley Stream) elementary school. A total of 114 students comprized the population, with experimental and control groups in each school being equated for grade placement, age, intelligence and socio-economic status. The project lasted one school year, from September, 1959 through June, 1960, with the experimental groups receiving 15 minutes of (oral) French instruction per day and the control groups engaging in other (unreported) activity during this time. All sections of the Stanford Achievement Test, Elementary Battery, Form J, were administered to both classes at the beginning of the year and an alternative form of the test, Form K, was administered at the end of the school year.

Analysis of the two groups' achievement gains was done separately. At Bayside, there was no significant difference between experimental and control scores on the Stanford test of reading, spelling and language (.01 level had been chosen as criterion), although the experimental group had slightly higher mean gains in reading and language. The controls were slightly ahead in spelling mean gain. At Valley Stream, reading and language scores were not significantly different (at the .01 level), although there were higher means for the language students. The experimental group

registered a significantly ($p < .01$) higher mean gain in spelling.

There are several aspects of this study which would lead one to question it as supportive of a positive impact of language study on English language arts skills. The first is underlined by the author herself: she points to the possible Hawthorne effect caused by the two experimental classes, since there was not a FLES program in place at either of the schools at the time The second aspect involves what appears to be a significantly higher mean I.Q. in the experimental group at Valley Stream; it was this group that achieved a significantly higher mean gain in spelling than did the controls. Although Lopato reports these I.Q. differences, she does not discuss them specifically, nor were I.Q. scores used as covariates in the analysis of the Stanford tests; simple t-tests were used for these comparisons.

A study conducted in the Champaign, Illinois public schools reported that fourth grade FLES students of Spanish scored higher on the Iowa Test of Basic Skills subtests for reading vocabulary and reading comprehension (Johnson, et al, 1963). FLES students (N=90) had studied Spanish for 100 minutes per week for one school year during time that had been subtracted from instructional periods in social studies, arithmetic and language arts. Control group students (N=90) attended school for the same number of minutes per day, and had full instructional periods of social studies, arithmetic and language arts. The experimenters report that the groups were comparable with respect to chronological age, I.Q. and sex distribution. In addition, pre-administration of Iowa subtests on reading vocabulary, reading comprehension and language skills led the experimenters to believe that the groups were comparable.

In the post-test of the same Iowa subtests, experimental pupils showed slightly higher mean gains in reading vocabulary and reading comprehension, but showed lower mean gains in language skills. Reported t-values indicate that all three differences were non-significant. Despite this, however, the authors state in their conclusion that "the experimental group showed

greater achievement in reading vocabulary and reading comprehension and that in language skills...the two groups varied little...." (p. 11)

It would seem prudent not to consider this study as solid evidence for a positive significant effect of foreign language study on English language arts performance because the confidence levels discussed in the report are not interpretable and do not appear to justify the conclusions quoted above.

A 1971 study in the District of Columbia Public Schools reported a significant effect of French and Spanish FLES instruction on reading test scores. Test scores on the Comprehensive Tests of Basic Skills were compared for a combined French-Spanish group (N=249) and a non-language (N=650) group. Scores were obtained for vocabulary, comprehension and total reading in October, 1970 and in May, 1971; mean progress scores were calculated for both groups and subjected to t-test analysis. The French-Spanish group was found to have made significantly greater progress on all three measures ($p < .05$).

Several facts lead us to accept these results with caution, however. First, the report's authors are careful to point out that they have been unable to ascertain group comparability between experimental and control groups, though they do state that classes in the District of Columbia were heterogeneously grouped at the time of the study. The language classes had been "randomly chosen" by the principals of the elementary schools involved; there is no way to tell to what extent personal bias may have crept into these decisions. Secondly, the FLES students had been taking French and Spanish for three years prior to the pre-test so it is difficult to make inferences about what impact the treatment had on the measured outcomes. Were the measured gains of the FLES students attributable to the one year's experience they had between October, 1970 and May, 1971, or did these gains depend in some way on the prior training they had received in French or Spanish?

The more rigorously carried out of the FLES studies reviewed above indicate that there is no significant effect on English language arts skills in elementary students when they study a foreign language in elementary school for 15-20 minutes per day. In virtually every study where a positive effect was reported, there appear to be valid reasons to interpret more cautiously the experimenter's findings. This does not mean that we should abandon the search for a connection here, however. Further more closely controlled studies should be conducted, in order to replicate these positive findings.

This paper has provided a brief overview of evidence which appeared most likely to shed light on the influence of foreign language study on performance in the native language. The results of some studies done in Latin FLES programs show that specially designed Latin curricula appear to improve English language arts test scores, although results are not always statistically significant. Studies done in bilingual, immersion and language-switch programs appear to have only marginal relevance, since determining variables in those situations are usually sociological, economic or political rather than linguistic in nature. Also, the difference between learning a language in a communicative setting as opposed to the traditional foreign language classroom model is an important one. It could be, for instance, that learning a foreign language in a communicative setting (such as in the street or in an immersion program) has little or no effect on an individual's English language arts skills as measured by currently available tests. On the other hand, a foreign language learned in an academic environment, because of attention paid to such things as vocabulary and sentence structure, might indeed bring about higher scores in English language arts tests.

Results of studies comparing English language arts scores of French and Spanish FLES students with scores of non-language learners are not conclusive. Several studies have concluded that 15-20 minutes per day of FLES does not significantly

influence English language arts scores either up or down; others have indicated that there is a positive impact, though we have seen that these studies are susceptible to criticism.

The Report of the Advisory Panel on the Scholastic Aptitude Test Score Decline (Wirtz, 1977) addresses the question of the correlation between language study and SAT-Verbal test scores:

> A clear parallel unquestionably shows up between students' SAT-Verbal scores and the number of foreign language courses they have taken in high school. Those who report having taken four or more such courses (about 10 percent of the test takers) average more than 100 points higher than those (about 8 percent) reporting no work in foreign language; and the averages rise progressively with the number of courses taken. (p. 27)

The authors go on to question the causality of this relationship, stating that it could very well be that brighter students end up taking foreign languages, not that language study influences verbal ability.

It is clear that to get a satisfactory answer concerning the influence of foreign language study on native language, further investigation is needed. Although we have assembled in this paper a certain amount of research data that is suggestive, it is certainly not compelling. What is needed is a set of studies which will provide adequate data for each subject to enable us to control for I.Q., English ability <u>before</u> taking foreign language, socioeconomic status, language of the home, experience abroad, high school curriculum, language studied and grade received. When a longitudinal study can be accomplished which takes into account all the above variables, we should be able to say with more assurance that there is (or is not) an influence of foreign language study on native language usage.

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DATA FROM INDIANAPOLIS PUBLIC SCHOOLS PROJECT
(Sheridan, 1976)

TABLE 1. Year II. Results on the Metropolitan Achievement Test, Intermediate Battery of Experimental and Control Groups (Pre-test=Form H, Post-test=Form F)

	Pre-test Scores (Form H)				Post-test Scores (Form F)			
Sub-test	Experimental	Control	T	Signif.	Experimental	Control	T	Signif.
Word Knowledge	4.3	4.4	.71	NS	5.1	4.8	1.97	$p < .05$
Reading	4.0	4.3	1.61	NS	5.0	4.8	1.30	NS
Language	3.9	4.0	1.02	NS	5.6	5.3	1.55	NS
Spelling	5.3	5.0	3.73	$p < .01$	5.6	5.5	1.23	NS

TABLE 2. Year III. Results on the Metropolitan Achievement Test, Intermediate Battery of Experimental and Control Groups (Pre-test=Form H, Post-test=Form F)

	Pre-test Scores (Form H)				Post-test Scores (Form F)			
Sub-test	Experimental	Control	T	Signif.	Experimental	Control	T	Signif.
Word Knowledge	4.4	4.4	0	NS	5.3	4.9	2.09	$p < .05$
Reading	4.2	4.1	.57	NS	4.9	4.6	1.69	$p < .10$
Language	4.2	4.3	.59	NS	5.7	5.2	2.63	$p < .01$
Spelling	5.1	5.7	3.85	$p < .01$	5.5	5.3	1.25	NS